

Date: Fri, 17 Dec 93 04:30:18 PST
From: Ham-Equip Mailing List and Newsgroup <ham-equip@ucsd.edu>
Errors-To: Ham-Equip-Errors@UCSD.Edu
Reply-To: Ham-Equip@UCSD.Edu
Precedence: Bulk
Subject: Ham-Equip Digest V93 #136
To: Ham-Equip

Ham-Equip Digest Fri, 17 Dec 93 Volume 93 : Issue 136

Today's Topics:

*** R-U-A GENIE Garage Door Opener Guru???.....Talk To Me!!!!..please?
 4 SALE:Icom 2iA 2 mtr hand held
 entry-level rigs - recommendations?
 For Sale
 FOR SALE:Kenwood TH-25AT hand held
 FOR SALE:Kenwood TR-25AT hand held
 How do those \$1000-\$3000 DX receivers compare to scanners?
 Packet internet link
 receiver sensitivity (2 msgs)
 WANTED:Drake TR4C receiver

Send Replies or notes for publication to: <Ham-Equip@UCSD.Edu>
Send subscription requests to: <Ham-Equip-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Equip Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-equip".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 16 Dec 93 20:49:36 GMT
From: ogicse!cs.uoregon.edu!sgiblab!swrinde!news.dell.com!pmafire!
usenet@network.ucsd.edu
Subject: *** R-U-A GENIE Garage Door Opener Guru???.....Talk To Me!!!!..please?
To: ham-equip@ucsd.edu

I have had some experience as a commercial two-way radio tech, and as
a result have recently been "suckered" into helping a friend fix his
Genie Garage Door Opener. If you are at all knowledgable about these
things, could you PLEASE be filled with Christmas Spirit and help
a guy, whos helping another guy???? :-)))
Here are some of the questions I have:
(by the way,....the mech. portion of the door opener is working fine)

*The receiver is a model "AR-75" and also states a freq. of "310"
Does this mean that the transmitter and receiver operate on 310.000Mhz.,
or just within this general freq. band???

*This is an older system that uses a plastic "code key" that allows small
jumpers or fingers to make contact with ground. How does changing this
code effect the carrier? Is the freq. pulse modulated or other?

*What is the best method to align the transmitters with the receiver?
(I do have access to an FM service monitor, freq. counter, wattmeter, etc.)

ANY help or suggestions you might have would be VERY MUCH APPRECIATED,
and might even get you on my "Christmas List"!!! :-)

Please email "jeffl@pmafire.inel.gov"

Thanks again and Happy Holidays!
Jeff

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|| ~~~~~ || ~~~~~ ||
|| Jeff B. Later WB7TZA "jeffl@pmafire.inel.gov" | "I have become ||
|| *"Disclaimer, Disclaimer, Where's My Lawyer!"* | comfortably numb" ||
|| | Pink Floyd ||
|| ~~~~~ || ~~~~~ ||
|| ~~~~~ || ~~~~~ ||
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Date: 14 Dec 1993 23:38:34 MST
From: ftpbox!mothost!schbbs!waccvm.corp.mot.com!RZ5630@uunet.uu.net
Subject: 4 SALE:Icom 2iA 2 mtr hand held
To: ham-equip@ucsd.edu

I have an Icom model IC-2iA 144mhz hand held transceiver for sale. It has
so many features I can't count them but I will list some of them. I think
it is the smallest 2 meter hand held currently in production and uses
Artificial Intelligence to assist the owner in programming the many
functions. Some of the features are:

1. Height 3.6" Width 2.3" Depth 1.2".
2. Weight 9.1oz with standard NICAD battery pack.
3. 100 memories.
4. 16 DTMF memories used for storing phone numbers or other
DTMF functions.
5. Programmable power saver.
6. CTCSS tone encoder/decoder.

7. Scan function (Memory/VFO).
8. Receive 138mhz-174mhz.
9. Current drain with power saver on in standby mode is 16ma.
10. Clock which allows unit to power up and off at preset times.
11. Odd repeater splits easily programmed.

The list goes on and on. Check with HRO, AES or Icom. If you need a small, and I mean small, handy talky then this is the one. It will easily fit into a shirt pocket or purse with room to spare. And weighing just over 1/2 pound it is easy to carry. The NICAD battery pack that is installed will last for almost 4 hours under normal usage.

Bottom line: I want \$265 and I will ship to anywhere in the lower 48 states. The unit is still under warranty and I still have the warranty card. Please contact me if you think you can use this fine radio. My reason for selling is to generate enough cash to buy a dual band radio.

73,

Bob Norman ARS K7NWB

bnorman@libre.com
rz5630@waccvm.sps.mot.com
602-833-7786 home

Date: 9 Dec 93 10:12:23 GMT
From: news.acns.nwu.edu!math.ohio-state.edu!magnus.acs.ohio-state.edu!
usenet.ins.cwru.edu!agate!news.Brown.EDU!noc.near.net!news.delphi.com!BIX.com!
arog@network.ucsd.edu
Subject: entry-level rigs - recommendations?
To: ham-equip@ucsd.edu

alanb@sr.hp.com (Alan Bloom) writes:

[lots of stuff deleted]

>One way they are different is that they have true FULL BREAK IN. Many of
>the modern rigs claim to have break-in, but it is not instantaneous like
>the HW-16. I can recommended the rig -- I used one for several years
>(with an Advanced license) and worked lots of DX with it using a random-
>length wire antenna. Sure enough, HW-16s only work on CW, so if you want
>SSB etc. look for another rig. Also they don't cover 20 meters, which
>in my opinion is the major limitation.

>If you are on a tight budget and want to work CW, they are a great way
>to get on the air.

>AL N1AL

There are a lot of reasons for someone that is new to working with transmitters to go for a tube radio. The two major ones are a./ forgiveness and b./ the test equipment needed for solid state stuff.

Forgiveness... far too many times I've mucked up and had plates glow real real bright and had the tube still be a tube after it had cooled off. Everytime I've had a transistor get hot, its said thanks by protecting the fuse... or took the fuse with it as it died.

Test equipment... Tubes want high Q circuits as contrasted to the low Q that is needed for transistors. In general, dipping the plate current and peaking the output from the loading adjustment means that whats on the air is only where its suppose to be... not all over the band. Tuning transistor rigs with a spectrum analyser is real interesting from all of the garbage that is there from minor tuning errors.

The major problem is turning into replacement tubes for both receivers and transmitters.

Anyone know what tubes are available from Russia these days?

Date: 14 Dec 93 19:10:39 GMT
From: ftpbox!mothost!delphinium.rtsg.mot.com!taupe!lyman@uunet.uu.net
Subject: For Sale
To: ham-equip@ucsd.edu

MOTOROLA Model T1237BJ VHF Improved Mobile Telephone System (IMTS)
Base Station.

Description: A 100 Watt continuous duty VHF transceiver originally used for IMTS mobile telecommunications (pre-cellular).

Features:

- * Capable of full duplex operation - Duplexers included
- * At least 100 Watt (through the duplexer) output, significantly more without duplexer
- * Solid state receiver and exciter, ceramic tube final.
- * D.C. master control. Base station is capable of remote

operation through DC current loop impressed on audio lines.

- * Receiver spec'ed at .5 mv for 20 DB quieting
(I'm sure it still meets this spec)
- * Built-in test and monitor set includes in-line power / SWR meter, meters for voltage and current sensing of switch-selectable receiver/transmitter points.
- * Mounted in weather-proof, outdoor cabinet.
- * Modular construction with plenty of room to add control and "private line" hardware.

Caveats: This piece of equipment is still an IMTS base station and has NOT been modified for use as a repeater (although there would be no problem in doing so). It's still crystaled up on a 152.510T / 157.770R MHZ channel. This model will retune to Amateur frequencies.

This base station is kinda big ... and heavy, built in typical Motorola tradition (like a tank).

The pitch: This piece of equipment is an industry workhorse. It is easily modifiable to work in the amateur VHF band and would make an excellent club main repeater or a backup repeater.

It would also make a great simplex / duplex base station for individual use.

This piece is not exactly *like new* but it is in very good condition and I'm sure will provide many years of service.

The Deal: I'm looking for a Collins 75S-3(C) receiver in good condition to match my 32S-3 transmitter. I would most preferably like to arrange a trade but will negotiate a price that would allow me to buy such a receiver.

When it comes down to it, no reasonable offer will be refused.

I'm not sure about shipping...if you're interested
I'm sure we can reach some agreement

Me: Michael Lyman (WA0ZVI / 7)
(602) 937-8383 (home)
(602) 732-2002 (work)
Phoenix, Az.
Email: lyman@satcom.mot.com
or
lyman@rtsg.mot.com

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====+=====
"Many of the truths we cling | Michael Lyman

Date: 14 Dec 1993 22:58:16 MST
From: ftpbox!mothost!schbbs!waccvm.corp.mot.com!RZ5630@uunet.uu.net
Subject: FOR SALE:Kenwood TH-25AT hand held
To: ham-equip@ucsd.edu

I have a Kenwood model TH-25AT 2 meter hand held unit for sale. It has an output power of 2.5 watts with the current battery pack but can operate at a 5 watt level with the optional 12VDC battery pack. The unit has the DTMF keypad built in. The only optional accessory not installed is the sub-audible tone Encoder/Decoder. I am the original owner having purchased the unit from HRO in 1988. It is in excellent condition and works very well. The package includes the TH-25AT, 2 BP-6 NICAD battery packs, charger, flexible antenna and manual. I am asking \$185.00 including shipping to the lower 48 states. My reason for selling is to generate some money to buy a dual (2M/440) band hand held unit. If you have any interest in this unit please contact me via EMAIL or telephone.

Thanks,

Bob Norman, ARS K7NWB

bnorman@libre.com
rz5630@waccvm.sps.mot.com
602-833-7786 home

Date: 14 Dec 1993 22:56:54 MST
From: ftpbox!mothost!schbbs!waccvm.corp.mot.com!RZ5630@uunet.uu.net

Subject: FOR SALE:Kenwood TR-25AT hand held
To: ham-equip@ucsd.edu

I have a Kenwood model TH-25AT 2 meter hand held unit for sale. It has an output power of 2.5 watts with the current battery pack but can operate at a 5 watt level with the optional 12VDC battery pack. The unit has the DTMF keypad built in. The only optional accessory not installed is the sub-audible tone Encoder/Decoder. I am the original owner having purchased the unit from HRO in 1988. It is in excellent condition and works very well. The package includes the TH-25AT, 2 BP-6 NICAD battery packs, charger, flexible antenna and manual. I am asking \$185.00 including shipping to the lower 48 states. My reason for selling is to generate some money to buy a dual (2M/440) band hand held unit. If you have any interest in this unit please contact me via EMAIL or telephone.

Thanks,

Bob Norman, ARS K7NWB

bnorman@libre.com
rz5630@waccvm.sps.mot.com
602-833-7786 home

Date: Thu, 9 Dec 1993 13:33:46 GMT
From: world!news.mtholyoke.edu!news.unomaha.edu!cwis.unomaha.edu!
rerickso@uunet.uu.net
Subject: How do those \$1000-\$3000 DX receivers compare to scanners?
To: ham-equip@ucsd.edu

I think a great part of the expense has to do with good sensitivity below 500 kHz. Also, the use of lattice filters instead of discrete components is a major plus. If it has Collins type mechanical filters is even better yet. It could be the PLL circuit is free of birdies for all practical purposes. Three conversion receivers are essentially image-free and require much greater expense to manufacturer and align.

73,

Ron
AK0N
rerickso@cwis.unomaha.edu

Date: Thu, 9 Dec 1993 09:09:12 GMT

From: pipex!uknet!bradford.ac.uk!K.E.Walton@uunet.uu.net
Subject: Packet internet link
To: ham-equip@ucsd.edu

Hi

FTP to ucsd.edu and go to the directory hamradio/packet/tcpip and that is all software to do with TCP/IP and linking Internet to Packet etc. Look for a file called something like introNOS and that is a good introduction.

Hope it helps

Kevin

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//// Computer Science Student      Email : K.E.Walton@Bradford.AC.UK  ////  
//// Bradford University          Snail Mail : 38 Fieldhead Street      ////  
//// England                      Bradford, West Yorks,           ////  
//// Call Sign : G7PMO            ENGLAND, BD7 1LP                   ////
```

Date: Tue, 14 Dec 1993 18:13:03 GMT
From: library.ucla.edu!europa.eng.gtefsd.com!emory!kd4nc!ke4zv!
gary@network.ucsd.edu
Subject: Receiver sensitivity
To: ham-equip@ucsd.edu

In article <1993Dec13.125311.18166@cyphyn.radnet.com> randy@cyphyn.radnet.com
(Randy) writes:

>I hate to say this... but, being 1993, with everyone using High power,
>(both Ham and commercial alike) and noise made by appliances... any
>receiver with better than 10 u-volt sens is a waste:

That's not true except possibly at the lower end of HF. Above 14 MHz, a
2 uV for 10 db S/N sensitivity is definitely warranted. Under winter
conditions, this level of sensitivity is even warranted at the lower
HF frequencies. And a 0.5 uV for 12 db SINAD FM sensitivity is almost
always warranted at VHF/UHF. An SSB MDS of 0.2 uV is very usable.

A receiver with a 11 uV MDS is *horribly* deaf, even at lower HF.

Gary

--

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Gary Coffman KE4ZV          | I kill you,                | gatech!wa4mei!ke4zv!gary  
Destructive Testing Systems | You kill me,              | uunet!rsiatl!ke4zv!gary  
534 Shannon Way           | We're the Manson Family | emory!kd4nc!ke4zv!gary  
Lawrenceville, GA 30244   | -sorry Barney           |
```

Date: Tue, 14 Dec 1993 17:54:14 GMT
From: library.ucla.edu!europa.eng.gtefsd.com!emory!kd4nc!ke4zv!
gary@network.ucsd.edu
Subject: receiver sensitivity
To: ham-equip@ucsd.edu

In article <gganderson.166.0@augustana.edu> gganderson@augustana.edu (Kevin Anderson -7325) writes:

>
>Is there a practical way I can understand the differences between
>receivers of say 2, 1, .5, and .125 microvolts sensitivity?
>Obviously the factors of power of transmitted signal, distance
>to source, interference, etc., all play into this. But is there
>really an effective minimum sensitivity one needs for say local
>VHF repeater/simplex use versus "general" HF versus DX HF?
>How do broadcast AM, FM, TV and international SW stations compare
>to amateur signals in field strength and required receiver
>sensitivity?

Well raw sensitivity numbers are essentially worthless. What we need to know is the signal level required to achieve a certain signal to noise ratio. For common amateur FM radios, the reference is usually a 12 db SINAD. Typical values for common 2 meter ham equipment would be about 0.5uV for a 12 db SINAD. Now signal *bandwidth* plays a critical role in determining the S/N ratio of the receiver. The narrower the bandwidth, the better the S/N ratio, assuming the receiver filtering is designed to match the signal bandwidth. Amateur FM uses 5 kHz deviation while TV uses 25 kHz deviation, and FM broadcast uses 75 kHz deviation. So for the *same signal power*, the amateur receiver will have a better S/N than the TV receiver which will in turn have a better S/N than a FM broadcast receiver. Inversely, for a given S/N you need more signal for TV and FM broadcast than for amateur FM. So while 0.5uV might be a typical amateur spec, an FM broadcast receiver would typically need 2 uV for the same S/N.

The ultimate sensitivity of a receiver, or MDS (Minimum Discernable Signal), is the point where the internal and external noise are equal to the signal power present. Now the thermal noise power is $N=k*B*T_o$ where k is Boltzmann's constant ($1.38*10^{-23}$), B is bandwidth in Hz, and T_o is 290 degrees Kelvin. So for the *ideal* receiver with no internally generated noise, and with no atmospheric, galactic, or manmade noise sources, the MDS in a FM voice channel of 20kHz (2*deviation+highest modulating frequency+ a bit of fudge factor for imperfect filter bandpass), is $8*10^{-17}$ watts. Across a 50 ohm load,

that's 0.06 uV. But alas, no receiver is perfect, and there are atmospheric, galactic, and manmade noise to consider. And you need gain to boost that signal up to usable levels.

The noise power out of a receiver stage is $N_{pt} = Gk_B(T_o + T_e)$ where everything is as before with the addition of G , the stage gain, and T_e , the *effective* noise temperature of the stage. Let's say the first stage gain of a receiver is 10, and that the stage has a T_e of 300 (pretty crummy). That gives us a noise power of 1.63×10^{-15} watts, or 0.29uV. Our signal power is now 8×10^{-16} or 0.2uV. So now the noise is stronger than the signal and we've dropped below MDS. This receiver can't hear our 0.06uV signal at it's input.

Let's work backwards as see how weak a signal we can receive on a typical 2 meter ham receiver. A good receiver has a T_e of about 35K and a first stage gain of 18 db, or a gain of 63. So we find that the N_{pt} is 1.76×10^{-13} watts at it's output. For a signal power equaling this noise power, we need an input signal of 2.8×10^{-15} watts, or 0.37uV across 50 ohms. Any signal weaker than that will be below the MDS of this receiver. (Note we've ignored the noise contribution of all the stages after the first stage. As a practical matter we can do this because the first stage dominates the noise performance of a good receiver.)

We've ignored external noise sources. They can be significant, especially at HF. It's not uncommon to see 50 uV atmospheric noise at 80 meters during the summer thunderstorm season. Any signal weaker than that will be lost to even a perfect receiver.

Gary

--

Gary Coffman KE4ZV	I kill you,	gatech!wa4mei!ke4zv!gary
Destructive Testing Systems	You kill me,	uunet!rsiatl!ke4zv!gary
534 Shannon Way	We're the Manson Family	emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244	-sorry Barney	

Date: 14 Dec 1993 22:55:29 MST
From: ftpbox!mothost!schbbs!waccvm.corp.mot.com!RZ5630@uunet.uu.net
Subject: WANTED:Drake TR4C receiver
To: ham-equip@ucsd.edu

I am looking for a Drake R4C receiver in very good to like new condition. It must have the optional "Noise Blanker" as well as the optional "6KHZ AM" filter. I would also like to have as many of the CW filters (250hz, 500hz

and 1500hz) as possible. I am willing to pay a good price as well as all UPS shipping costs. If you have an R4C you would like to sell, please contact me with your particulars.

Thanks,

Bob Norman, ARS K7NWB

bnorman@libre.com

rz5630@waccvm.sps.mot.com

602-833-7786 home

End of Ham-Equip Digest V93 #136
